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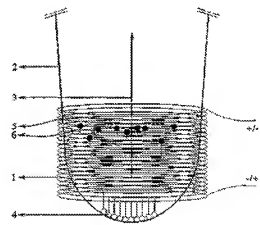
(54)【発明の名称】　電気サイクル反応を行うための装置

(57)【要約】
本発明は、電磁場による核酸鎖の分離に基づいて、特定の核酸配列の増幅方法を行うための装置を提供する。この分離手段は、増幅方法における中温ポリメラーゼの使用を可能とし、それによって、その増幅方法の速度および正確さ、さらにはまた、増幅することができる標的核酸の大きさを増大させる。

Figure 2A



* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
1. It is a device for performing a magnetic cycle reaction, (a) A temperature control means of a temperature control sample block (some magnetic cycle reaction sample tubes are attached in sample tube WERU) containing a plate containing sample tube WERU of a large number located in a line in a row, and a sample block;
(b) The 1st magnetism element and its 1st magnetism element are located a sample block top and near it, A flow of current which passes along a wire which the 1st magnetism element contains a coil of a large number located in a line in a row, and the coil contains an electrical conduction wire of many volumes in the surroundings of an elasticity iron core, and contains the coil produces a magnetic field around the 1st magnetism element.;
(c) The 2nd magnetism element and its 2nd magnetism element are located the bottom of a sample block, and near it, A flow of current which passes along a wire which the 2nd magnetism element contains a coil of a large number located in a line in a row, and the coil contains an electrical conduction wire of many volumes in the surroundings of an elasticity iron core, and contains the coil produces a magnetic field around the 2nd magnetism element.;
A control device containing a microprocessor and its control device (d) A temperature control sample block, And it is connected effective in each of the 1st magnetism element and the 2nd magnetism element, The control device is connected effective also in a user interface again, A device included combining a power supply which the control device is connected effective in; and the (e) control device which control a flow of current which passes along each magnetic element, and temperature of a temperature control sample block, and supplies electric power to a device.
2. Use the device according to claim 1, it is how to perform a magnetic cycle reaction for amplifying a specific DNA fragment, include (a) solid phase primer in a nucleic acid chain complementary to target nucleic acid, and make a solid phase chain combined with target nucleic acid.;
(b) Separate a solid phase chain and target nucleic acid.;
(c) Include a magnetic primer in a nucleic acid chain complementary to a solid phase chain, and obtain a double chain which has one solid phase chain and one magnetic chain.;
(d) Separate a solid phase chain from a magnetic chain by applying an electromagnetic field of sufficient intensity to dissociate a double chain by generating a magnetic field in the 1st magnetism element of the device according to claim 1.;
(e) Make a solid phase chain anneal a magnetic primer complementary to a solid phase chain, and make a magnetic chain anneal a complementary solid phase primer to a magnetic chain by applying an electromagnetic field by generating a magnetic field in the 2nd magnetism element of the device according to claim 1.;
(f) A way only the number of times required to elongate an annealed primer by suitable DNA polymerase, and obtain amplification DNA of quantity of; and the (g) request includes repeating a process of (d) – (f).

3. Use the device according to claim 1, it is a method for amplifying specific single strand target nucleic acid, include (a) magnetism primer in a nucleic acid chain complementary to target nucleic acid, and make a magnetic chain combined with target nucleic acid.;
(b) Separate a magnetic chain and target nucleic acid.;
(c) Include a solid phase primer in a nucleic acid chain complementary to a magnetic chain, and obtain a double chain which has one solid phase chain and one magnetic chain.;
(d) Separate a solid phase chain from a magnetic chain by applying an electromagnetic field of sufficient intensity to dissociate a double chain by generating a magnetic field in the 1st magnetism element of the device according to claim 1.;
(e) Make a solid phase chain anneal a magnetic primer complementary to a solid phase chain, and make a magnetic chain anneal a complementary solid phase primer to a magnetic chain by generating a magnetic field in the 2nd magnetism element of the device according to claim 1.;
(f) A way only the number of times required to elongate an annealed primer by suitable DNA polymerase, and obtain amplification DNA of quantity of; and the (g) request includes a process of repeating a process of (d) - (f).
4. Use the device according to claim 1, it is a method for amplifying specific double strand target nucleic acid, separate a chain of (a) target nucleic acid, and obtain the 1st chain and 2nd chain.;
(b) Include a solid phase primer in a chain complementary to the 1st chain, obtain the 1st heteroduplex that has the 1st chain and solid phase chain, and include a magnetic primer in a chain complementary to the 2nd chain, and obtain the 2nd heteroduplex that has the 2nd chain and magnetic chain.;
(c) Separate the 1st heteroduplex and 2nd heteroduplex.;
(d) Make a solid phase chain anneal a magnetic primer complementary to a solid phase chain, and make a magnetic chain anneal a complementary solid phase primer to a magnetic chain.;
(f) elongating an annealed primer by suitable DNA polymerase --; and (g) -- separating a solid phase chain from a magnetic chain by applying an electromagnetic field of sufficient intensity to dissociate a double chain by generating a magnetic field in the 1st magnetism element of the device according to claim 1 --;
(h) Make a solid phase chain anneal a magnetic primer complementary to a solid phase chain, and make a magnetic chain anneal a complementary solid phase primer to a magnetic chain by generating a magnetic field in the 2nd magnetism element of the device according to claim 1.;
(i) A way only the number of times required to elongate an annealed primer by suitable DNA polymerase, and obtain amplification DNA of quantity of; and the (j) request includes a process of repeating a process of (g) - (i).

[Translation done.]